

Art Unit: 2818

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09/07/05

1. (Amended) A manufacturing method of an electron-emitting device comprising the steps of:

disposing an electrically conductive member having a gap on a substrate; and

applying a voltage to said electrically conductive member while irradiating at least said gap with an electron beam from electron emitting means disposed apart from said electrically conductive member in an atmosphere comprising a carbon compound.

2. (Amended) A manufacturing method of an electron-emitting device comprising the steps of:

disposing first and second electrically conductive members on a substrate with a gap interposed; and

applying a voltage to said first and second electrically conductive members while irradiating at least said gap with an electron beam from electron emitting means

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disposed apart from said electrically conductive members in an atmosphere comprising a carbon compound.

3. (Amended) A manufacturing method of an electron-emitting device comprising the steps of:

disposing an electrically conductive member having a gap on a substrate; and

irradiating at least said gap with an electron beam from electron emitting means disposed apart from said electrically conductive member in an atmosphere comprising a carbon compound within a period where a voltage is applied to said electrically conductive member.

4. (Amended) A manufacturing method of an electron-emitting device comprising the steps of:

disposing first and second electrically conductive members on a substrate with a gap interposed; and

irradiating at least said gap with an electron beam from electron emitting means disposed apart from said electrically conductive members in an atmosphere comprising a carbon compound within a period where a voltage is applied to said first and second electrically conductive members.

5. (Amended) The manufacturing method of an electron-emitting device according to claim 1 or 3, wherein said electrically conductive member having said gap is an

electrically conductive film which connects a pair of electrodes to each other and has said gap in a portion of the electrically conductive film.

6. (Amended) The manufacturing method of an electron-emitting device according to claim 2 or 4, wherein said electrically conductive members are a pair of electrodes which are disposed with said gap interposed.

7. (Amended) The manufacturing method of an electron-emitting device according to claim 2 or 4, wherein said electrically conductive members are a first electrically conductive film and a second electrically conductive film which are connected to first and second electrodes disposed apart respectively and are disposed with said gap interposed.

8. (Amended) The manufacturing method of an electron-emitting device according to any one of claims 1 through 4, wherein said applied voltage is a pulse-like voltage.

9. The manufacturing method of an electron-emitting device according to any one of claims 1 through 4, wherein said electron beam is at an energy level not lower than 1 keV and not higher than 20 keV.

10. A manufacturing method of an electron source having a plurality of electron-emitting devices, wherein said electron-emitting device is manufactured by the manufacturing method according to any one of

claims 1 through 4.

11. A manufacturing method of an image-forming
apparatus having an electron source and an image
5 forming member, wherein said electron source is
manufactured by the manufacturing method according to
claim 10.

~~13~~¹². (New) A manufacturing method of an electron-emitting device,
comprising the steps of:
1 disposing a first electrically conductive member and a second
electrically conductive member so as to form a gap therebetween, on a substrate;

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irradiating at least said gap with an electron beam from electron emitting means disposed apart from said first and second electrically conductive members, within an atmosphere containing a carbon compound; and
applying a voltage to said first and second electrically conductive members.

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10.

(New) A manufacturing method of an electron-emitting device, comprising the steps of:

disposing an electrically conductive member having a gap, on a substrate;

irradiating at least said gap with an electron beam from electron emitting means disposed apart from said electrically conductive member, within an atmosphere containing a carbon compound; and

applying a voltage to said electrically conductive member.

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11.

(New) A manufacturing method of an electron-emitting device, comprising the steps of:

disposing a first electrically conductive member and a second electrically conductive member so as to form a gap therebetween, on a substrate;

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irradiating at least said gap with an electron beam from electron emitting means disposed apart from said first and second electrically conductive members, within an atmosphere containing a carbon compound; and

applying a voltage to said first and second electrically conductive members, within the atmosphere containing the carbon compound.

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16. (New) A manufacturing method of an electron-emitting device, comprising the steps of:

disposing an electrically conductive member having a gap, on a substrate;

irradiating at least said gap with an electron beam from electron emitting means disposed apart from said electrically conductive member, within an atmosphere containing a carbon compound; and

applying a voltage to said electrically conductive member, within the atmosphere containing the carbon compound.—